

REMARKS/ARGUMENTS

Claims 1-21 are pending in the application. Reconsideration is respectfully requested. Applicant submits that the pending claims 1-21 are patentable over the art of record and allowance is respectfully requested of claims 1-21.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al. (U.S. Patent No. 6,850,933) in view of Admitted Prior Art. Applicants respectfully traverse.

The Examiner submits that Larson does not explicitly indicate the claimed "materialized query table that stores exception data", but cites Admitted Prior Art as teaching this and submits that it would have been obvious to one of ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references because materialized query table that stores exception data of APA's teaching would have allowed Larson's system to optimize the queries in the database system. Applicants respectfully traverse.

As described in the Specification, on page 15, paragraph 34:

If there are outliers, then predicate (1) is not semantically equivalent and the calculation of the range for the new predicates considers the outliers that are stored in the outlier MQT. Additional adjustments may be made to form the new predicate.

Thus, when there are outliers, the calculation of the range for the new range predicate must consider outliers that are stored in the outlier MQT. Merely replacing the views of the Larson patent with outlier materialized query tables will not result in the claimed invention.

In particular, claims 1, 11, and 21 describe deriving a new range predicate based on the target column and introducing the new range predicate into the query, wherein the query is executed to retrieve data from one or more data stores.

In the Background of the Invention section of the Specification, pages 2-3, paragraph 8 describes that:

Using this materialized query table, newly introduced predicates ("new predicates" or "new range predicates") are generated to help with the access plan of the underlying

table, while the exception or outlier data is picked up from the materialized query table and added to the result (using a UNION ALL approach).

With this conventional approach, the exception or outlier data is picked up from the materialized query table and added to the result (using a UNION ALL approach), which teaches away from the claimed derivation of a new range predicate based on the target column (which is in an outlier predicate in the outlier materialized query table) and introduction of the new range predicate into the query.

Also, the Larson patent at Col. 16, lines 29-35 describes that flexibility is provided by the column equivalences, range predicates, and hubs. The Larson patent's mere mention of range predicates does not teach or suggest deriving a new range predicate based on the target column (which is in an outlier predicate in the outlier materialized query table).

Claims 1, 11, and 21 describe introducing the new range predicate into the query, wherein the query is executed to retrieve data from one or more data stores. The Larson patent at Col. 7, line 66 to Col. 8, lines 1-8, describes that the compensating range predicates are determined that are to be applied to the view to produce the query result; and, if a query range matches the corresponding view range, no further restriction is needed; if the lower bound does not match, the view result is restricted by enforcing the predicate $(T.C \geq lb)$; and, if the upper bounds differ, the predicate $(T.C \leq ub)$ is enforced. There is no description in the cited portion of the Larson patent of deriving a new range predicate based on the target column (which is in an outlier predicate in the outlier materialized query table) and introducing the new range predicate into the query, wherein the query is executed to retrieve data from one or more data stores. Also, applying the range predicates to the view teaches away from introducing the new range predicate into the query.

Therefore, Applicants respectfully submit that claims 1, 11, and 21 are not taught or suggested by the Larson patent or Admitted Prior Art, either alone or together.

Dependent claims 2-10 and 22-20 incorporate the language of independent claims 1 and 11 and add additional novel elements. Therefore, dependent claims 2-10 and 22-20 are not taught or suggested by the Larson patent or Admitted Prior Art, either alone or together, for at least the same reasons as were discussed with respect to claims 1 and 11.

Furthermore, claims 10 and 20 describe translating the correlation predicate into a join predicate in a context of the outlier materialized query table; when the translated join predicate matches the join predicate in the outlier materialized query table, deriving a new predicate for the correlation predicate in a child query block using a source predicate on a quantifier of a parent query block; and wherein searching the query for the source predicate further includes searching the parent query block for the source predicate.

The Larson patent at Col. 16, lines 55-67 describes that, whenever the optimizer finds a SPJ+G expression, the view matching rule is invoked and all substitutes produced by view matching participate in cost-based optimization in the normal way. The cited portion of the Larson patent does not teach or suggest translating the correlation predicate into a join predicate in a context of the outlier materialized query table.

The Larson patent at Col. 8, lines 40-67, describes an example view and an example query, while FIG. 3 illustrates a flow diagram of a method of determining whether a view contains the rows needed by the query (Col. 2, lines 21-23). The cited portion of the Larson patent does not teach or suggest, when the translated join predicate matches the join predicate in the outlier materialized query table, deriving a new predicate for the correlation predicate in a child query block using a source predicate on a quantifier of a parent query block.

The Larson patent at Col. 8, lines 40-67, FIG. 7, describes an example view and an example query, while FIG. 7 illustrates a flow diagram of a method of determining supersets of a key (Col. 2, lines 34-36). The cited portion of the Larson patent does not teach or suggest that searching the query for the source predicate further includes searching the parent query block for the source predicate.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-21 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0460.

The attorney of record invites the Examiner to contact her at (310) 553-7973 if the Examiner believes such contact would advance the prosecution of the case.

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